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(71) Applicants (for all designated States except US): ONCOTHERAPY SCIENCE, INC. [JP/JP]; 3-16-13, Shirokanedai, Minato-ku, Tokyo 108-0071 (JP). JAPAN AS REPRESENTED BY THE PRESIDENT OF THE UNIVERSITY OF TOKYO [JP/JP]; 3-1, Hongo 7-chome, Bunkyo-ku, Tokyo 113-8654 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): NAKAMURA, Yusuke [JP/JP]; 17-33, Azamino 1-chome, Aoba-ku, Yokohama-shi, Kanagawa 225-0011 (JP). FURUKAWA, Yoichi [JP/JP]; 10-40, Miyazaki 3-chome, Miyamae-ku, Kawasaki-shi, Kanagawa 216-0033 (JP).

(74) Agents: SHIMIZU, Hatsushi et al.; Kantetsu Tsukuba Bldg. 6F, 1-1-1, Oroshi-machi, Tsuchiura-shi, Ibaraki 300-0847 (JP).

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Declarations under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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24 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR DIAGNOSING DIFFUSE-TYPE GASTRIC CANCER

(57) Abstract: Methods for detecting and diagnosing diffuse-type gastric cancer (DGC) are described herein. In one embodiment, the diagnostic method involves the determination of an expression level of DGC-associated gene that discriminate between DGC and normal cell. The present invention further provides methods of screening for therapeutic agents useful in the treatment of DGC, methods of treating DGC and method of vaccinating a subject against DGC.

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INTERNATIONAL SEARCH REPORT

International Application No.
PCT/JP 03/11975

26 APR 2005

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, MEDLINE, BIOSIS, EMBASE, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 98/41864 A (LOCUS GENEX OY ;RISTIMAEKI ARI (FI); HAERKOENEN MATTI (FI)) 24 September 1998 (1998-09-24) page 3, line 25 - page 4, line 25	1-11
Y	WO 99/29168 A (LUTTEMAN ANDERS) 17 June 1999 (1999-06-17) abstract page 20, line 1 - line 10	1-11

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *Z* document member of the same patent family

Date of the actual completion of the international search

27 January 2004

Date of mailing of the international search report

16. 06. 2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Leber, T

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP 03/11975

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>ABE H ET AL: "Cloning and sequence analysis of a full length cDNA encoding human mitochondrial 3-oxoacyl-CoA thiolase." BIOCHIMICA ET BIOPHYSICA ACTA. NETHERLANDS 16 NOV 1993, vol. 1216, no. 2, 16 November 1993 (1993-11-16), pages 304-306, XP009024153 ISSN: 0006-3002 the whole document</p>	15-19
Y	<p>WO 02/078524 A (CHICZ ROMAN M ;ZYCOS INC (US); URBAN ROBERT G (US); TOMLINSON ANDR) 10 October 2002 (2002-10-10) page 5, line 9 - page 6, line 22 claims 28,45,46,59 page 6, line 23 - line 29 page 41, line 9 - page 43, line 13</p>	15-19, 29,30
Y	<p>US 2002/151696 A1 (BANDARU RAJASCHKAR) 17 October 2002 (2002-10-17) claims 19-22 paragraphs '0032!, '0033!, '0060! - '0062!, '0076!, '0408! - '0444!</p>	15-19
Y	<p>US 2002/102617 A1 (CARDONE MICHAEL H ET AL) 1 August 2002 (2002-08-01) paragraphs '0050! - '0071!; claims 71-93</p>	15-19
Y	<p>US 2002/055627 A1 (ROSEN CRAIG A ET AL) 9 May 2002 (2002-05-09) abstract paragraphs '0157! - '0169!, '0221! - '0226!, '0245! - '0259!, '0300!, '0315!, '0727! - '0747!</p>	1-11,29, 30
P,Y	<p>HASEGAWA S ET AL: "Genome-wide analysis of gene expression in intestinal-type gastric cancers using a complementary DNA microarray representing 23,040 genes" CANCER RESEARCH, AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, US, vol. 62, no. 23, 1 December 2002 (2002-12-01), pages 7012-7017, XP002254863 ISSN: 0008-5472 the whole document</p>	1-11

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INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP 03/11975

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>HIPPO YOSHITAKA ET AL: "Global gene expression analysis of gastric cancer by oligonucleotide microarrays" CANCER RESEARCH, AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, US, vol. 62, no. 1, 1 January 2002 (2002-01-01), pages 233-240, XP002254861 ISSN: 0008-5472 the whole document</p>	1-11
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A	<p>MORI M ET AL: "Analysis of the gene-expression profile regarding the progression of human gastric carcinoma" SURGERY, C.V. MOSBY CO., ST. LOUIS,, US, vol. 131, no. 1 Supplement, January 2002 (2002-01), pages S39-S47, XP008022195 ISSN: 0039-6060</p>	
A	<p>KITAHARA O ET AL: "Alterations of gene expression during colorectal carcinogenesis revealed by cDNA microarrays after laser-capture microdissection of tumor tissues and normal epithelia." CANCER RESEARCH. UNITED STATES 1 MAY 2001, vol. 61, no. 9, 1 May 2001 (2001-05-01), pages 3544-3549, XP002267611 ISSN: 0008-5472</p>	
Y	<p>WO 02/078614 A (WANG JIA-WANG ;KERR WILLIAM G (US); UNIV SOUTH FLORIDA (US)) 10 October 2002 (2002-10-10) paragraphs '0085!, '0092!; claims 9-13</p>	29,30

INTERNATIONAL SEARCH REPORT

International Application No.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 12-14, 27
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-3, 6-11, 15-25, 29, 30 (all partly)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 12-14,27

Claims 12-14 refer to reference expression profiles. The said claims are formulated as product claims. The subject-matter of the said claims, however, cannot be regarded to relate to a product but only to the mere presentation of information, for which no search can be carried out (Rule 39.1(v) PCT).

Claims 22-31 refer to methods of treatment of the human or animal body. Such matter, however, is excluded from search by the PCT (Rule 39.1 (iv) PCT).

Although claims 22-26, 28-30 are directed to a method of treatment of the human or animal body, a search has been carried out based on the alleged effects of the compounds/compositions referred to in the said claims.

This was not possible for claims 27 and 31 which refer to the products of the screening methods referred to in claims 15-19. As the screening methods of claims 15-19 fail to define the products that may possibly be identified, claims 27 and 31 are unclear as their scope of protection cannot be determined (Art 6 PCT). Thus, no search was carried out for claims 27 and 31.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3,6-11,15-25,29,30 (all partly)

Invention 1 concerns a method of diagnosing or determining a predisposition for DGC, methods of screening for compounds useful for treating or preventing DGC, a kit, an array and methods for treating or preventing DGC in an subject related to the DGC-associated gene 1 (see Table 1).

2. claims: 1-3,6-11,15-25,29,30 (all partly)

Invention 2 concerns a method of diagnosing or determining a predisposition for DGC, methods of screening for compounds useful for treating or preventing DGC, a kit, an array and methods for treating or preventing DGC in an subject related to the DGC-associated gene 2 (see Table 1).

Inventions 3-136: Claims 1-3,6-11,15-25,29,30 (all partly)

Inventions 3-136 concern a method of diagnosing or determining a predisposition for DGC, methods of screening for compounds useful for treating or preventing DGC, a kit, an array and methods for treating or preventing DGC in an subject related to the DGC-associated gene 3-136, respectively (see Table 1).

Inventions 137-463: Claims: 1,4-11,15-21,26,28 (all partly)

Inventions 138-463 concern a method of diagnosing or determining a predisposition for DGC, methods of screening for compounds useful for treating or preventing DGC, a kit, an array and methods for treating or preventing DGC in an subject related to the DGC-associated gene 138-463, respectively (see Table 2).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/JP 03/11975

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Information on patent family members

International Application No.

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